

Status of Alaska Groundfish Stocks

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The Alaska Fisheries Science Center of the National Marine Fisheries Service produces stock assessments for major groundfish and shellfish stocks in the Alaskan waters on an annual basis. Stock assessment and fishery evaluation reports are prepared for the North Pacific Fishery Management Council meetings and use the assessments to recommend levels of acceptable biological catch (ABC).

The Alaska groundfish management system is based on extensive data available from the National Marine Fisheries Service observer program and dedicated research cruises. Catches of target and prohibited species (such as salmon, crab, herring, and Pacific halibut) are estimated at sea or in processing plants to provide real-time information to ensure that fisheries do not exceed total allowable catches (TACs) or violate other fishery restrictions (such as time–area closures). Dedicated research cruises coupled with observer data make it possible to build detailed population dynamics models. The results of these modeling activities are used to determine the status of individual species.

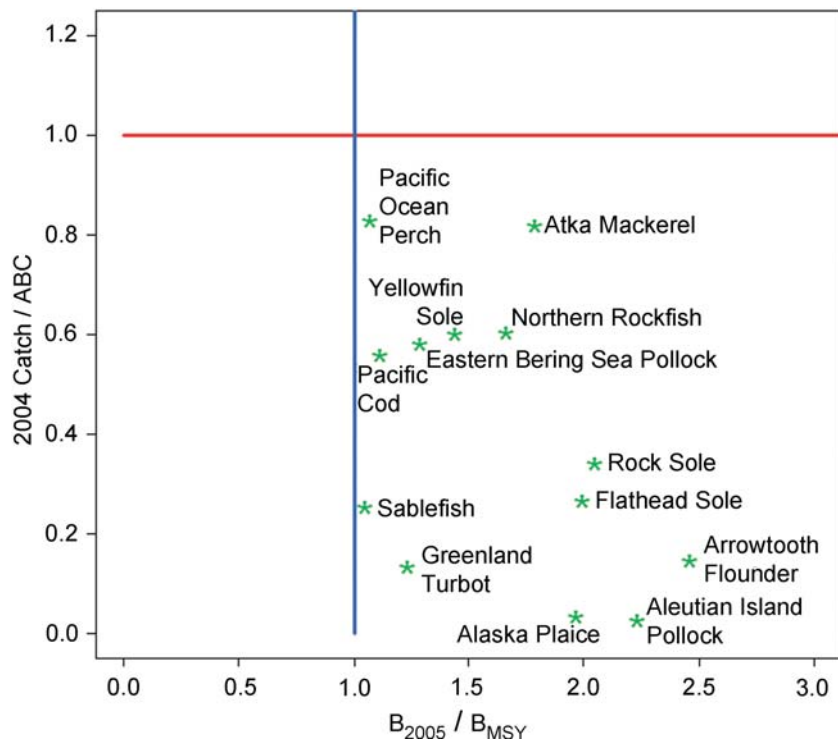
The first step in determining the TAC begins with the preparation of stock assessment and fishery evaluation reports. These reports contain analyses summarizing the information about the individual stocks and groups and include ABC and overfishing level (OFL) recommendations for future years. The authors of these reports (generally National Marine Fisheries Service scientists) present their findings to the North Pacific Fishery Management Council's groundfish Plan Teams each September and November. At these meetings the reports are reviewed and recommendations for ABC levels are compiled into two stock assessment and fishery evaluation report volumes (one each for the Bering Sea/Aleutian Islands and the Gulf of Alaska regions). In addition, the Plan Team recommendations for ABCs are presented. The compiled reports are then submitted to the North

Pacific Fisheries Management Council's Scientific and Statistical Committee for further review. This committee makes the final ABC recommendation to the Council, and the Council's Advisory Panel of industry representatives makes TAC recommendations. Finally, the recommended TAC levels are adjusted (for some species) by the Council to ensure that other constraints (for example, limiting the sum of all allowable catches in the Bering Sea and Aleutian Islands to be less than 2 million tons) are met. The following rule applies for all federally managed groundfish species in a given year:
$$\text{Catch} \leq \text{TAC} \leq \text{ABC} < \text{OFL}.$$

In practice, catch is often much less than the TAC, and the TAC is often much less than the ABC. The multispecies management system is, therefore, based on the premise that no individual components are overfished or below stock sizes that are considered detrimental to the ecosystem. Stock assessments can be obtained at www.afsc.noaa.gov/refm/stocks/assessments.htm.

A change in the timing requirements for conducting assessments was implemented in 2004. Based on an analysis conducted by scientists at the NOAA Alaska Fisheries Science Center in coordination with the NOAA National Marine Fisheries Service's Alaska Regional office, it was found that for longer-lived species, management advice on quotas could be based on biennial assessments. This cycle was designed to coincide with the current Alaska Fisheries Science Center survey regularity.

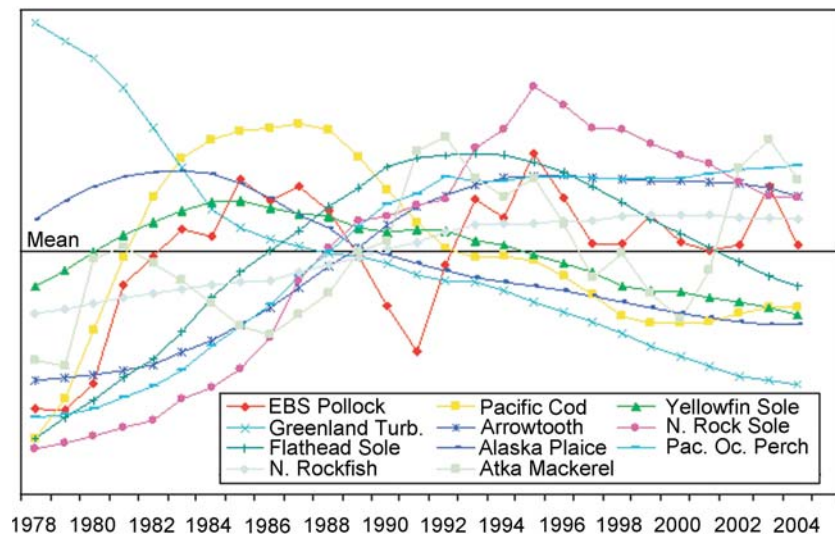
Presently, the main species of groundfish are all above their target stock size, and 2004 catch levels were below the maximum permissible ABC levels. During 2001–2003, fisheries for these groundfish species yielded 2.1 million metric tons annually, valued at \$615 million. The abundances of the major stocks of Alaska pollock and Pacific cod are high but subject to variability because of recruitment fluctuations. Virtually all flatfish resources (for example, rock sole, yellowfin sole, Alaska



Relative 2005 spawning stock size compared to the target stock size versus relative 2004 catch levels compared to 2004 maximum permissible Acceptable Biological Catch (ABC) levels for Bering Sea–Aleutian Island stocks. Values below the red line indicate that the catch levels in 2004 are less than the ABC estimated for that year. Values to the right of the blue line indicate that the spawning stock biomass projected to 2005 is greater than the level that would theoretically provide the MSY (maximum sustainable yield).

plaice, and arrowtooth flounder) are at high and healthy levels. Atka mackerel abundance is increasing and above average levels. Rockfish species comprise 5–8% of the groundfish complex biomass and are at healthy and stable levels. For the main stocks with age-structured analyses, the biomass trends for the Bering sea and Aleutian Islands regions suggest that stock conditions are fairly evenly split between those that are above average and those that are below in the past few years.

Data limitations make it difficult to assess less-abundant (minor) rockfish species. Together with other non-target species (such as sharks, skates, sculpins, and octopus), accurately assessing the vulnerability of these species represents a major challenge for NOAA. Efforts to monitor the status of non-target species have improved, and steps have been taken to ensure that adequate data collection programs are in place in advance of directed fishery development.



Biomass trends for Bering Sea and Aleutian Islands stocks relative to their mean level, 1978–2004.